

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:  
ANNA VISHEV  
SCHULTE ROTH & ZABEL LLP  
919 THIRD AVENUE  
NEW YORK, NY 10022

## PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT AND  
THE WRITTEN OPINION OF THE INTERNATIONAL  
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference 051319-0199	Date of mailing (day/month/year)
International application No. PCT/US04/26748	<b>FOR FURTHER ACTION</b> See paragraphs 1 and 4 below  International filing date (day/month/year) 17 August 2004 (17.08.2004)
Applicant NMB (USA), INC.	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

**Filing of amendments and statement under Article 19:**

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

**When?** The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

**Where?** Directly to the International Bureau of WIPO, 34 chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: +41 22 740 14 35

**For more detailed instructions,** see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to the protest against payment of (an) additional fee(s) under Rule 40.2,** the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

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Mail Stop PCT, Attn: ISA/US  
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Authorized officer

  
Thomas R. Hannon

Telephone No. 571-272-5350

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(PCT Rule 44.1)

Applicant's or agent's file reference 051319-0199	Date of mailing (day/month/year) <b>14 JUN 2005</b>
International application No. PCT/US04/26748	FOR FURTHER ACTION See paragraphs 1 and 4 below
Applicant NMB (USA), INC.	International filing date (day/month/year) 17 August 2004 (17.08.2004)

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

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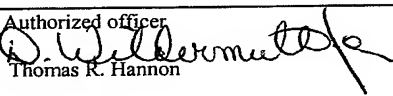
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# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 051319-0199	<b>FOR FURTHER ACTION</b> <div style="display: inline-block; width: 60%; text-align: right; font-size: small;">see Form PCT/ISA/220 as well as, where applicable, item 5 below.</div>	
International application No. PCT/US04/26748	International filing date ( <i>day/month/year</i> ) 17 August 2004 (17.08.2004)	(Earliest) Priority Date ( <i>day/month/year</i> ) 09 February 2004 (09.02.2004)
Applicant NMB (USA), INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the Report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

**2. ☐ Certain claims were found unsearchable (See Box No. II)**

**3. ☐ Unity of invention is lacking (See Box No. III)**

**4. With regard to the title,**



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

**5. With regard to the abstract,**



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

**6. With regard to the drawings,**

- a. the figure of the **drawings** to be published with the abstract is Figure No. 1



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/26748

### Box IV TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

The technical features mentioned in the abstract do not include a reference sign between parentheses (PCT Rule 8.1(d)).

#### NEW ABSTRACT

A fluid dynamic bearing mechanism for a motor (1) suitable for use in a hard disk drive and having a compact and thin shape, high bearing rigidity, and high rotating accuracy, and which securely keeps the rotor member (6) in place against shocks, and allows the inspection of lubricant supply amount easily. A fluid dynamic bearing mechanism having a capillary seal part (12) on one end of lubricant supply part formed by a minute gap including dynamic pressure grooves (10) formed on a shaft member (5) or a bearing member (4) is provided. An annular member (13) is fitted on the shaft member at the location corresponding to the capillary seal part, another annular member (14) is fitted on the bearing member at the location corresponding to the capillary seal part, a taper or step (13a, 14a) is formed on the outer peripheral surface of the annular member on the shaft member side and the inner peripheral surface of the annular member on the bearing member side. These inner and outer peripheral surfaces are arranged to be close to and facing with each other so that the rotor member is prevented from disengaging from the bearing member, and the capillary seal part can be formed at the same time. An axial dynamic pressure bearing unit (1) is formed between the annular member on the shaft member side and one end of the bearing member.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/26748

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : F16C 32/06

US CL : 384/100, 132

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 384/100, 132, 107, 112, 114, 119; 360/99.08, 98.07.

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,674,201 B2 (LIU et al.) 06 January 2004 (06.01.2004).	1-92
A	US 2003/0113045 A1 (FUJINAKA) 19 June 2003 (19.06.03).	1-92
A	US 6,357,916 B2 (SAEKI et al.) 19 March 2002 (19.03.2002).	1-92
A	US 6,339,515 B2 (LEE et al.) 15 January 2002 (15.01.2002).	1-92
A	US 6,217,218 B1 (INOUE et al.) 17 April 2001 (17.04.2001).	1-92
A	US 5,715,116 A (MORITAN et al.) 03 February 1998 (03.02.1998).	1-92

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

25 April 2005 (25.04.2005)

Date of mailing of the international search report

14 JUN 2005

Name and mailing address of the ISA/US

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NEW YORK, NY 10022

# PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing  
(day/month/year)

14 JUN 2005

Applicant's or agent's file reference

051319-0199

**FOR FURTHER ACTION**

See paragraph 2 below

International application No.

PCT/US04/26748

International filing date (day/month/year)

17 August 2004 (17.08.2004)

Priority date (day/month/year)

09 February 2004 (09.02.2004)

International Patent Classification (IPC) or both national classification and IPC

IPC(7): F16C 32/06 and US Cl.: 384/100, 132

Applicant

NMB (USA), INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

## 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US04/26748

**Box No. I Basis of this opinion**

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/US04/26748

**Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims <u>1-92</u>	YES
	Claims <u>NONE</u>	NO
Inventive step (IS)	Claims <u>1-92</u>	YES
	Claims <u>NONE</u>	NO
Industrial applicability (IA)	Claims <u>1-92</u>	YES
	Claims <u>NONE</u>	NO

**2. Citations and explanations:**

Claims 1-92 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest the combination including an annular member mounted on the shaft member corresponding to the capillary seal part, an annular member on the bearing member at a location corresponding to the capillary seal part, a taper or step formed on the inner and outer peripheries of the annular members, wherein the outer periphery surface and the annular member on the shaft member side and the inner periphery surface of the annular member on the bearing member side are arranged close to each other in the axial and radial directions to form the capillary seal part, and to prevent the rotating parts and the stationary parts from disengaging from each other.

Claims 1-92 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.



**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US04/26748

**Box No. VIII Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the questions whether the claims are fully supported by the description, are made:

Claims 5, 9, 15, 26, 32, 38, 54, and 79 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because the claims are indefinite for the following reason(s): Claims 5, 15, 26, and 38 each lack a proper antecedent for "said rotor". Claims 9, 32, 54, and 79 each lack a proper antecedent for "said cylindrical member".